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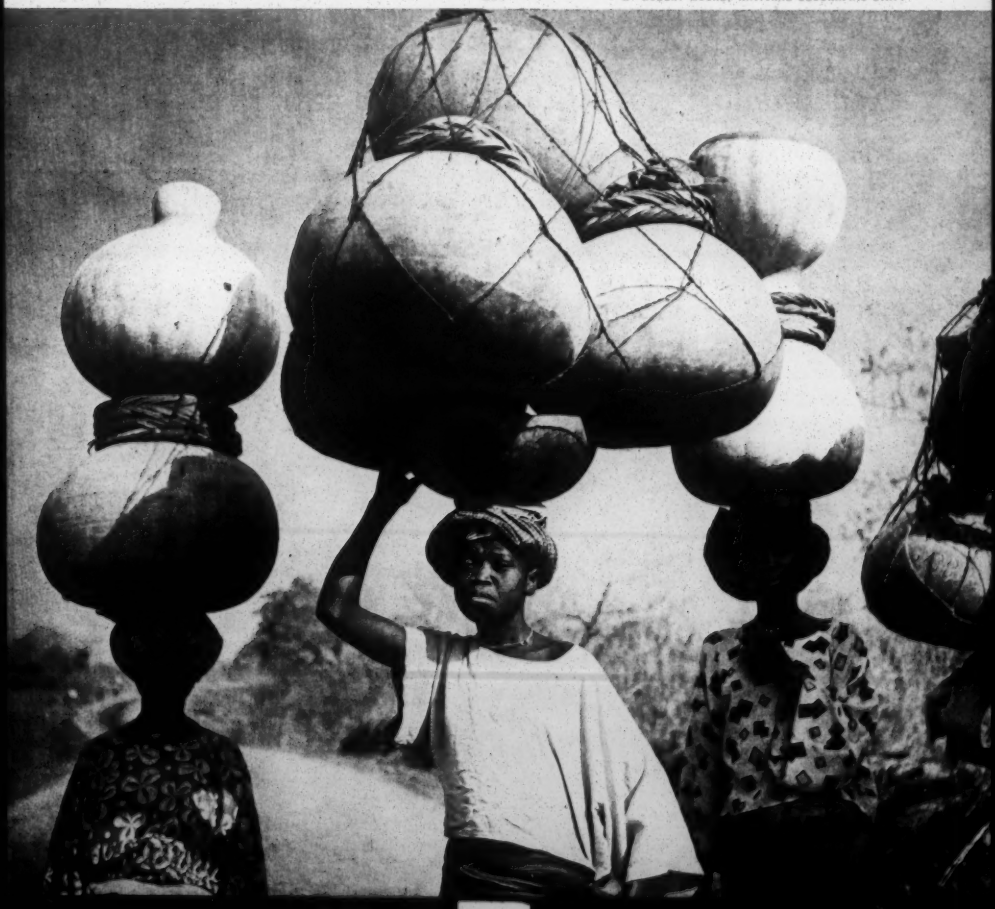


from Nigeria. They're used in soaps and cooking. And you should remember the country the next time you feed elephants at the London Zoo."

"Why?" By now she was pulling up the covers on her bed.

"Peanuts," he said. "Nigerians grow tons of them just to sell to little girls at zoos. I've seen pictures of them stacked in bags in great pyramids waiting for shipment [page 220]. Nigerians grow other things, too—cotton and cocoa and rubber. Each home supplies a trickle of produce and crafts. The combined output forms a wide stream of foods and materials like metal jewelry, blue-dyed cloth, and leatherwork that was once a source of "Morocco" leather. You can see them and buy samples in the market place at Kano, the mud city in the north." [Page 218].

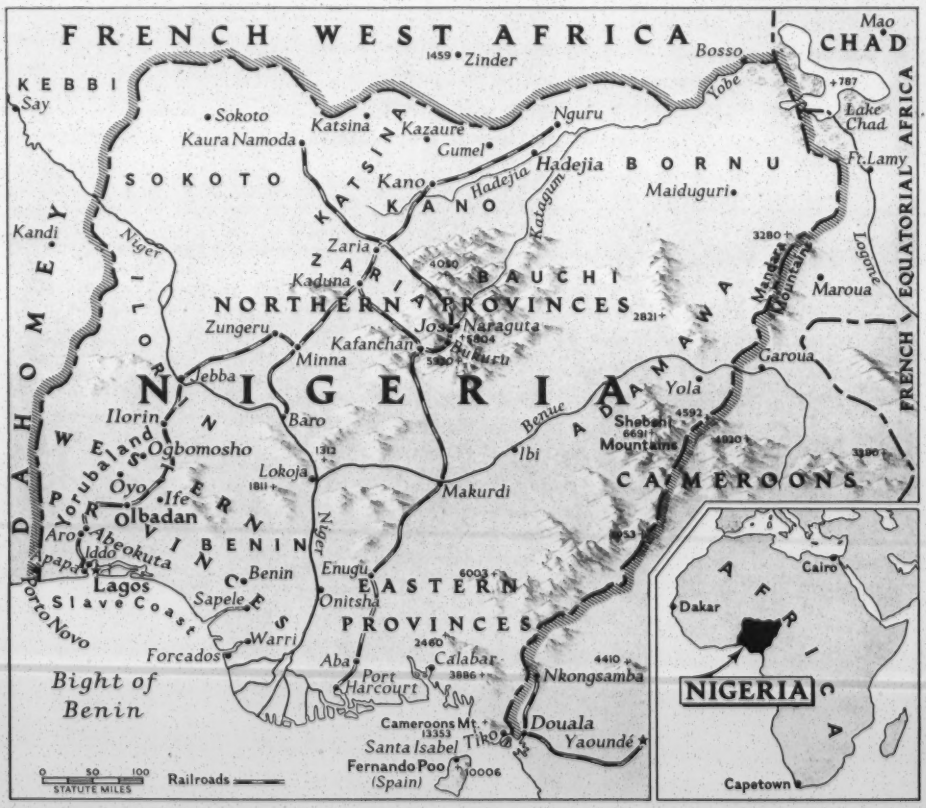
"Mud city!" Her drooping eyelids flew open with interest.

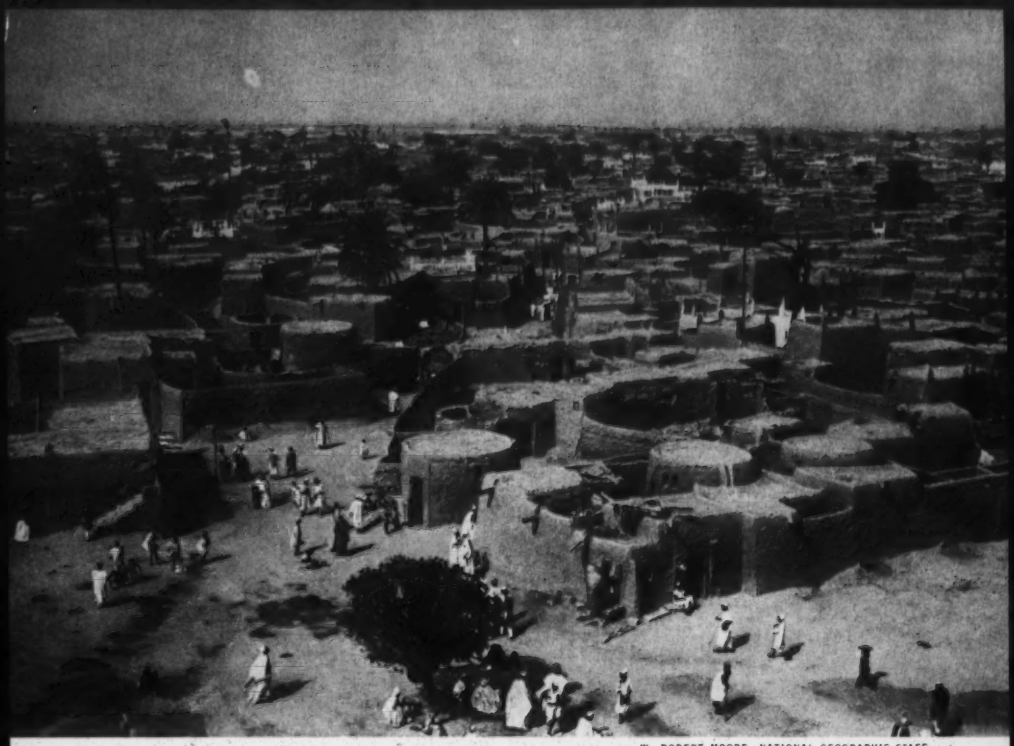
"If you ever visit Nigeria, you might come by plane and land at Kano. You'd enter a walled city where desert caravans used to meet—and sometimes still do. And you'd see that the walls are of sun-baked mud, perhaps 40 feet thick. The houses are mud, too. People must constantly repair them to keep them from melting into mud puddles in rainy season."

"Do people really live in mud houses?"

"For centuries they have built them and lived in them. These people of the Northern Region or Provinces are Moslems. Some are tall, dark

NATIONAL GEOGRAPHIC MAP





W. ROBERT MOORE, NATIONAL GEOGRAPHIC STAFF

Nigeria Ranks as Britain's Biggest Dependency

The little English girl had been allowed to watch television that evening—pictures of the recent Royal tour of Nigeria. After the program, she turned off the set, and headed reluctantly toward her bedroom.

"It would be lovely to be Queen," she said, thoughtfully. "But I don't think I would go to visit Nigeria."

Her father glanced at her over his evening paper. "Why not?"

"It seemed so hot and dusty—and all those people shouting, and the horsemen galloping. Why did she have to go there, Daddy?"

Her father put down his paper and stood up. "Nigeria's one of our British Commonwealth of Nations," he explained. "It's the biggest one that isn't entirely free and self-governing. That makes it rather important. Brush your teeth and jump into bed and I'll tell you about it."

Eyes shining, the little girl scampered upstairs. "Is it bigger than Texas, where the cowboys come from?"

"Good heavens, it's big enough to swallow Texas with Oklahoma and a slice of Arkansas thrown in for dessert! It's big enough to be very swampy along the coast and very dry and dusty far to the north."

"Does it grow lots of things?"

"Lots. About half the vegetable oils used all over the world come

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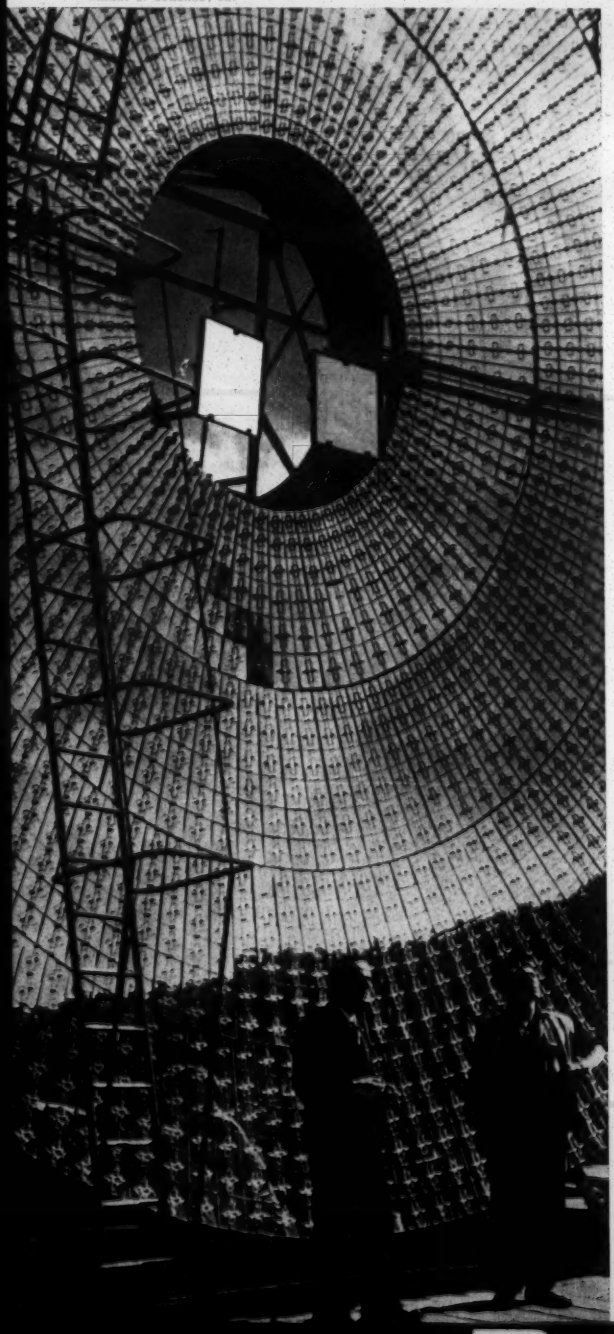
The Sun: Universal Source of Power

High in the Pyrenees of southern France a new kind of furnace produces temperatures as high as 6,000 degrees. It does not use coal, or electricity, or even uranium. Its energy comes from the world's most obvious source—the sun. The 35-foot concave mirror, shown here, does the trick by focusing the sun's rays to concentrate a vast amount of solar heat.

ALBERT E. LOMBARD, JR.



The capture of blazing solar power has been an age-old dream. Nature needs only a fraction of it to sustain all life. Most of the sun's energy goes to waste.

Scientists can only guess at the amount of energy pouring from the sun. Every day, around the earth, it amounts to roughly the same power as would be produced by burning 122 trillion tons of soft coal.

If man could harness completely the sunlight bathing a piece of Arizona desert less than 100 miles on a side, he would have enough energy to run all industries in the United States. The roof of an average house catches about 500 times as much energy as the electricity used by the occupants.

Since ancient times people have harvested salt by setting the sun to work evaporating sea water. In 1872, engineers built a solar still in Chile which produced 6,000 gallons of fresh water a day from the Pacific.

More recently, the Bell Telephone Laboratories developed a solar battery which transforms sunlight into electric current. A rural telephone line in Georgia carries sun-powered calls, thanks to these batteries.

Experimental houses have been designed to use the sun's heat instead of furnaces. Many were displayed last fall at Phoenix, Arizona. Their solar units are often bulky and awkward looking, besides being expensive, but they mark a step toward the future. So does the little Crookes Radiometer, familiar to physics students. Its vanes, silver on one side, black on the other, spin from the force of solar radiation.

Someday, the sun will turn mightier wheels than that.

W. ROBERT MOORE, NATIONAL GEOGRAPHIC STAFF

Hausas who ruled until Fulanis conquered them 150 years ago. Fulanis are lighter skinned and often bearded. Some even have blue eyes like yours.

"Nigeria has two other regions, which are like counties or states. Both lie along the coast, east and west of the Niger River—the country's named for it, you know. If you were Queen, you'd go first to Lagos, Nigeria's federal capital. You'd see an island city overlooking a fine harbor where slave raiders once put to sea. Then you'd visit three regional capitals. At Ibadan, you'd meet the Western Region's premier and his ministers. On the way there, through sweltering forests, you'd glimpse the Yoruba people, probably lined up behind their chiefs to cheer you.

"Over in the Eastern Region you'd go to the capital, Enugu, to meet more government heads. Natives there are mostly Ibos. They don't have tribes and chiefs. Many become tradesmen or go into politics.

"On the way to the northern capital, Kaduna, you'd pass from damp jungle into hilly grasslands—still hot, but much drier. You'd be met by Moslem horsemen—some of them wearing tunics of mail."

"I'd have to meet lots of important people," she murmured sleepily.

"You certainly would. You see, our British government has given more power to Nigerian governments. We've promised that this year any of the three regions may start governing themselves. But we'd like Nigeria to stay within our Commonwealth of Nations. That is one big reason why you, as Queen, would be making your trip. Are you asleep yet?"

"Not quite. Why do you know so much about Nigeria, Daddy?"

He smiled, flicking off the light. "Fathers know everything," he said.

Next Week: Gold Coast, Nigeria's Sister Nation

National Geographic References: ***Map***—Northern Africa (paper 50¢, fabric $1)
Magazine—Aug., 1953, "Safari Through Changing Africa" (75¢)

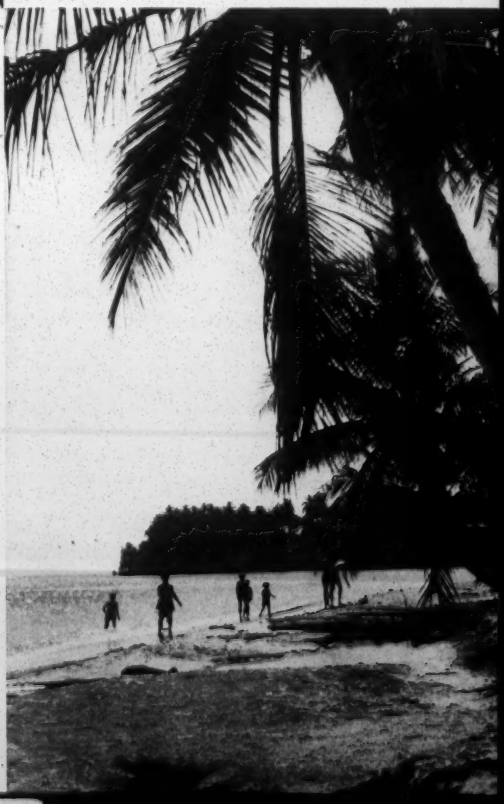
ADRIFT ON JAMAICA'S RIO GRANDE
Tourists Drive Upstream, Then Glide Down on Bamboo Rafts—with Pauses for Picnics and Swims in Mountain Water

But tourism is the big business. Columbus sailed into Montego Bay, now a familiar resort. At this and other north-coast communities, modern hotels face gleaming white beaches. Fresh water swimming pools are fed by mountain streams.

At Lord Nelson's naval dockyard, where the famed British admiral refitted his men-of-war, modern travelers swim at the Morgan's Harbour Club. Swashbuckling Henry Morgan, peer among pirates, once governed Jamaica. Some think he is buried beside the superb harbor of Kingston, the capital.

Queen Elizabeth II, Princess Margaret, and Sir Winston Churchill are among Jamaica's recent visitors. Dramatist Noel Coward writes plays there. Motion picture companies use the island's scenery for such films as *All the Brothers Were Valiant.*

Largest of the British West Indies, Jamaica, with 1,500,000 people, would be an important member of the proposed British Caribbean Federation. Whether or not this British plan to join Jamaica, the Leeward and Windward Islands, Trinidad, and Barbados into one far-flung "nation" ever reaches fulfillment, tourists still will flock to these sunny shores (right)—especially when February's snow sheathes northern cities.



National Geographic References: ***Map***—West Indies (paper 50¢, fabric $1)
Magazine—Mar., 1954, "Jamaica—Hub of the Caribbean" (75¢)
School Bulletins—Nov. 3, 1952, "Jamaica's Sunken City Awaits Exploration" (10¢)

UMI

OLDEST ISLAND INDUSTRY—Dating from Days of Spanish Occupancy, Sugar-Cane Growing Played a Lead Role in Jamaican History. Sugar Still Tops Exports

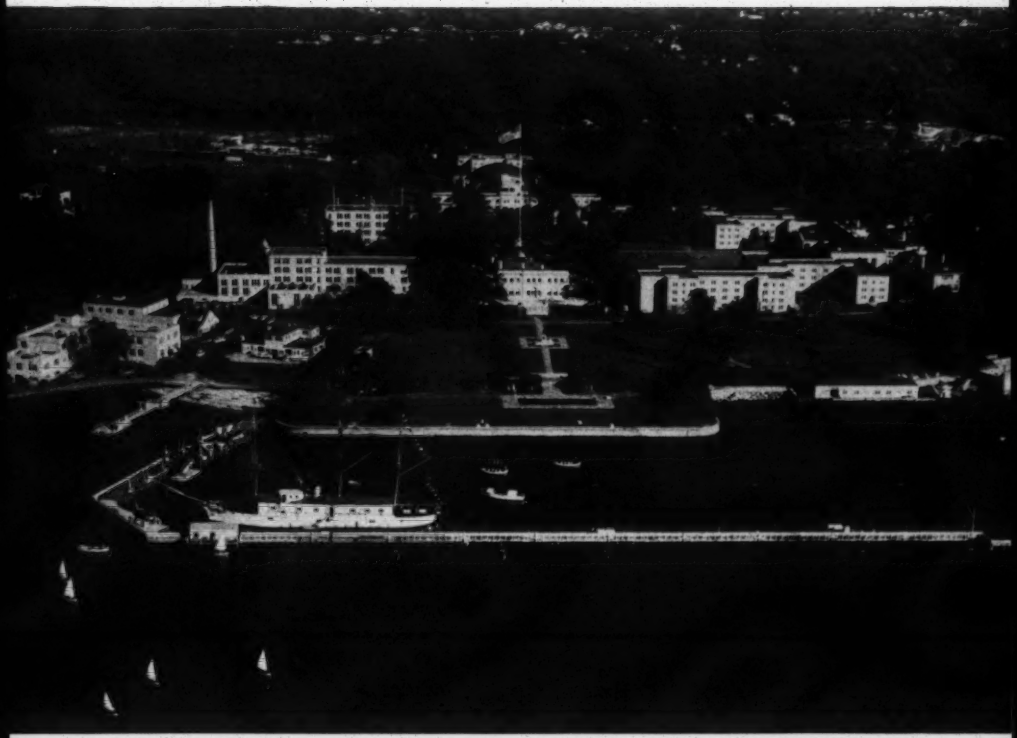
Mountainous Jamaica—Columbus's Crumpled Parchment

Photographs by W. Robert Moore, National Geographic Staff

Jamaica's first tourist, Christopher Columbus, is credited with history's briefest, most graphic account of the Caribbean island. Asked by Isabella of Spain to describe his discovery, the Admiral crumpled a sheet of parchment and tossed it before her.

Today's thousands of travelers who invade Jamaica by airliner and luxury ship learn only too well what Columbus meant. As they poke about the island, still "the fairest . . . the eyes have beheld," they find level going only in one mile out of every seven. Small farms seem almost to stand on end. Cattle graze in uplands. Fields of sugar cane and banana plantations, etched with coconut palms, pattern southern lowlands.

Besides richly growing fruits and vegetables, flowers erupt in flaming colors along the coast of the Connecticut-size colony of Britain. But some mountain soil is poor for crops. A Jamaican once sent a soil sample to an English chemist to find out why he could not grow grass for his cattle. The chemist advised, "Forget grass. Grow airplanes," for the lean, rust-red soil contained bauxite, the ore of aluminum. Since this discovery, barren pastures have proved to be pay dirt. Mining rivals agriculture as a source of income.



NATIONAL GEOGRAPHIC PHOTOGRAPHER VOLKMAR WENTZEL

TRAINING GROUND FOR YOUNG SHIPS' OFFICERS—Future Captains of the Nation's Merchant Fleet Learn the Ways of Seafarers at Kings Point on Long Island Sound

Service Academies—No. 4

Kings Point Trains Tomorrow's Mariners

Savage mid-February winds lash the American freighter S.S. *Great Star* slowly chuffing her way around the edge of a fierce North Atlantic storm. Towering waves crash against the hull and deluge the deck with icy water.

Inside the *Star*'s warm radio shack a tense voice from a storm-whipped fishing boat crackles over the loudspeaker: "Got a man here who needs a doctor right away. Looks like he's got appendicitis. We're caught in a storm. Can't make port quick enough to do any good. Position 68 degrees, 50 minutes west; 40 degrees, 42 minutes north."

Within minutes the *Star*'s radioman relayed Captain John Morrow's reply: "This is freighter *Great Star*. Estimate our position one day from New York. Hold present course. Will meet in about two hours and take man aboard by lifeboat. . . ."

Hampered by the howling, bitter cold wind and freezing spray, First Mate Thomas McClelland quickly checks a lifeboat inside and out. He calls for volunteers from the *Star*'s crew to man her. By tradition of the sea, it's his duty as first mate to command the rescue party.

In sight of the tossing little fishing boat, the lifeboat crew clutches slippery oars. Hardly audible over the screeching wind comes McClelland's

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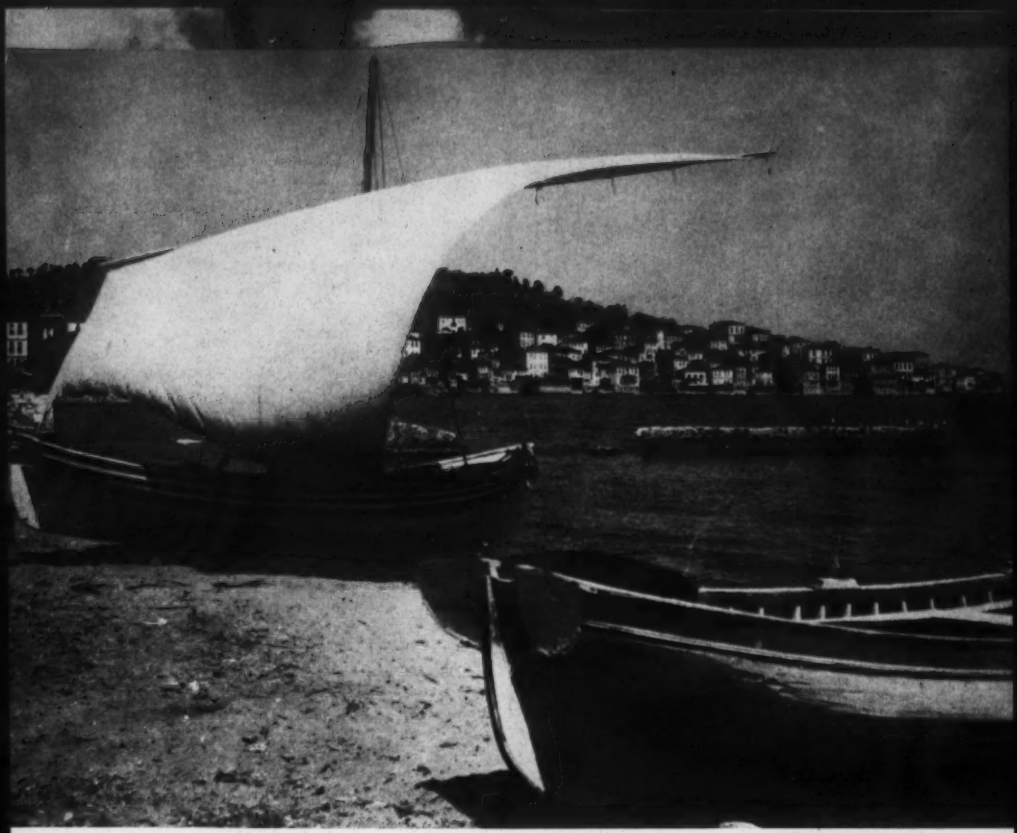


MAYNARD OWEN WILLIAMS

Black Sea, Distant Cousin of the Open Ocean

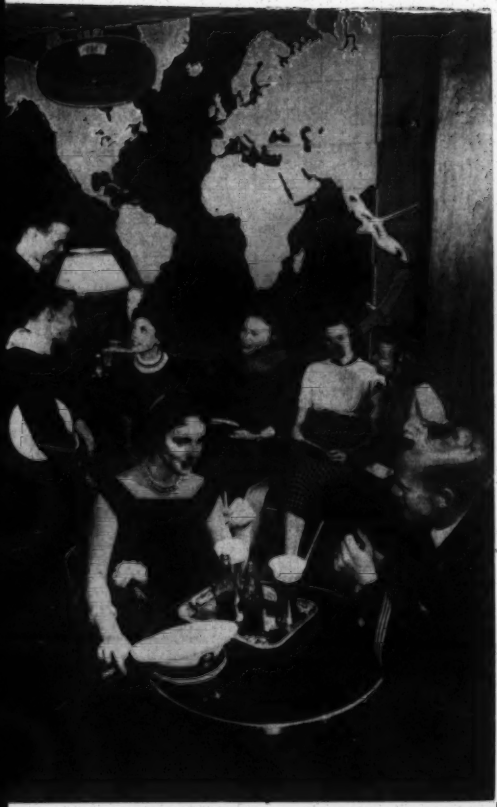
Deep in the recesses of Eurasia, world's largest land mass, lies the Black Sea. No portion of earth's enveloping oceanic waters is more remote from the open seas. A series of salt water corridors links it with the Atlantic, 2,100 miles away. Three of earth's narrowest straits all but seal it off—Gibraltar, Dardanelles, and Bosporus.

In an early geologic period, the Bosporus burst into what had been a landlocked sea. Salt water poured through the gut, killing life which had thrived in the fresher water. Decaying matter produced hydrogen sulphide which still bars the existence of plants or fish below 600 feet. Since its deepest spot plummets almost 7,400 feet, the California-size sea is more dead than alive. It was named Black Sea because heavy fogs lay a murky hand on its waters, robbing them of color.

Though its depths are bitterly salty, fresh river water constantly pouring into the Black Sea keeps its surface merely brackish. Great rivers feed it—Danube, Dnestr, Dnepr, Don—plus a number of lesser streams. Tides are scarcely noticeable.

Greeks, Romans, Genoese, Turks, and Russians have sailed it and braved its winter storms. And man has increased its importance as a waterway. Canals allow vessels to reach it from the Arctic Ocean, Baltic Sea, North Sea, Indian Ocean. Communist U.S.S.R., Bulgaria, and Romania share its shores with democratic Turkey.

National Geographic Map—Europe and the Near East (paper 50¢)



WEEK-END QUEENS AT KINGS POINT
Cadets and Guests Wait for the Dance to Begin after a Saturday Football Game

Strolling along Hague Basin, an artificial harbor where students practice important lifeboat drills and learn how to man dinghies, Mac passed scores of Kings Pointers in Navylike uniforms. Occasionally he'd chuckle as "plebes" walked stiffly by in single file, cutting abrupt 90-degree corners. "Wonder if they look forward to being upperclassmen as much as I did," he thought.

He knew they did. For everyone would spend his third-class (sophomore) year as a junior officer on an American commercial ship. In fact, one would work with him on the *Great Star*, training to become a deck officer. Another—a future engineer—would work below deck. "Before the year ends,"

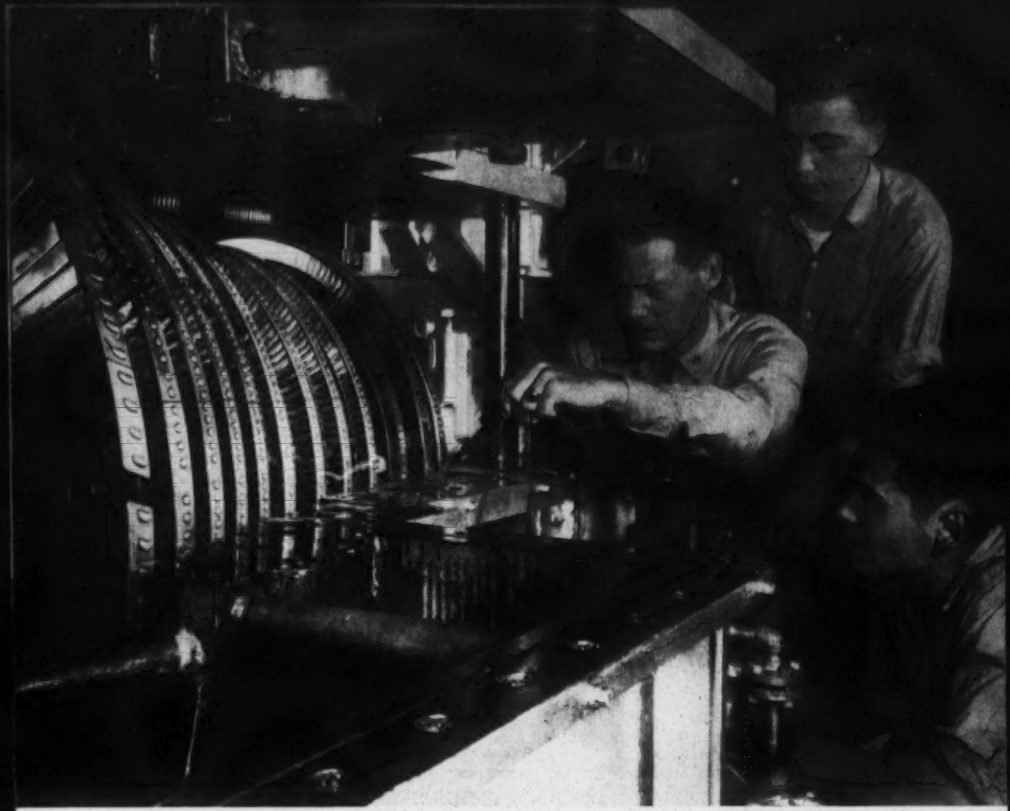
NATIONAL GEOGRAPHIC PHOTOGRAPHS BY VOLKMAR WENTZEL

he mused, "some of these boys will sail around the world two or three times."

By this time Mac had reached Fulton Hall, home of an entire engine room for a Liberty ship. Two and a half decks high, the oil-burning engine heats the whole campus and shows Kings Pointers what makes a steamship go. Inside, engine cadets made actual repairs—as much a part of their training as classes in chemistry, mathematics, and physics.

In another seamanship laboratory on the 65-acre campus, future deck officers took turns peering over a radarscope in an electronics-navigation class. Elsewhere, others fumbled with tow-ropes in a rope-

SEAGOING SCHOLARS BALANCE GEAR
Cadets Ready for Their Sophomore Year at Sea Wait to Board S.S. *United States*



NATIONAL GEOGRAPHIC PHOTOGRAPHER ROBERT F. SISSON

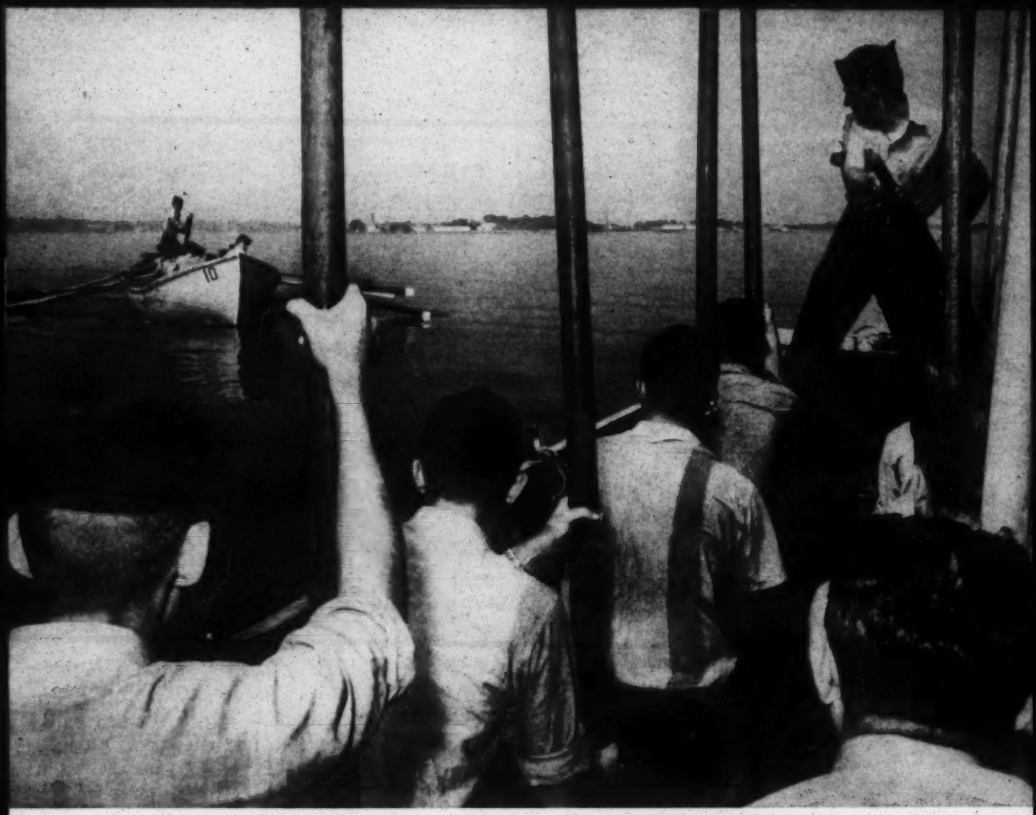
SHIP'S POWERHOUSE MOVES INDOORS—To Show Engineering Students What Makes a Vessel's Propellers Whirl, Kings Point Brought in a Full-Size Turboelectric Unit

order: "Lower away!" Every muscle strains against the surging sea. Anxious shipmates sometimes see the pitching lifeboat drop out of sight behind swelling waves. But minutes later, McClelland and his crew pull alongside the fishing boat.

By next afternoon, the stricken seaman was in a New York hospital—the perilous sea rescue just an unpleasant memory for him.

But for First Mate McClelland, the experience brought back memories spanning more than a decade. He went ashore for a nostalgic visit to Kings Point, the United States Merchant Marine Academy. After a 19-mile drive from New York City, he parked on a shady road on the campus overlooking Long Island Sound and walked to a near-by pier. He stopped alongside two sparkling white lifeboats stowed like those on the *Great Star*. As he looked about him, he thought: "Some things I learned right here ten years ago helped me save a man's life yesterday."

To Mac, as he was known by classmates in those days, Kings Point had changed little. Its laboratories and classroom buildings spread out around stately Wiley Hall, one-time mansion of millionaire Walter P. Chrysler. Almost 13 years ago it became the academy's administration building when the Federal Government bought the big estate and made it a training ground for youths who would someday sail the country's merchant ships.



NATIONAL GEOGRAPHIC PHOTOGRAPHER ROBERT F. SISSON

SEAMAN'S SALUTE—During Frequent Rowing Drills, Cadet-Midshipmen "Toss Oars," the Traditional Recognition for Approaching Craft with Dignitaries Aboard

splicing course, and some practiced ship loading on an imaginary freighter.

But two upperclassmen conjugating French verbs aloud, reminded Mac that Kings Pointers learn more than sea specialties alone. Classes in languages, history, and literature help make graduates well-rounded Merchant Marine officers—"Ambassadors of our American way of life," as Rear-Admiral Gordon McLintock, academy superintendent, once told Mac's senior class. Few ambassadors get three diplomas, but Kings Pointers do. In four years they earn commissions as Naval Reserve ensigns, bachelor of science degrees, and licenses as third mates or third assistant engineers.

Mac watched scores of Kings Pointers step lively as bells clanged and classes changed. Before him passed youths from every State. To get into Kings Point, each had to prove a high-school education or its equivalent and take stiff competitive tests plus rigid Navy physical examinations.

"How many of them will answer roll on graduation day?" Mac wondered. He knew that fewer than two thirds of an average plebe group finally receive diplomas, just as the case had been with his own class.

After graduation, most of the young men swarming around him would become ships' officers, like Mac. Some would end up as oceanographers, hydrographers, shipping executives, regular Navy or Coast Guard officers, instructors, or port captains.

National Geographic Magazine—Nov., 1955, "Kings Point: Maker of Mariners" (school price 55¢)